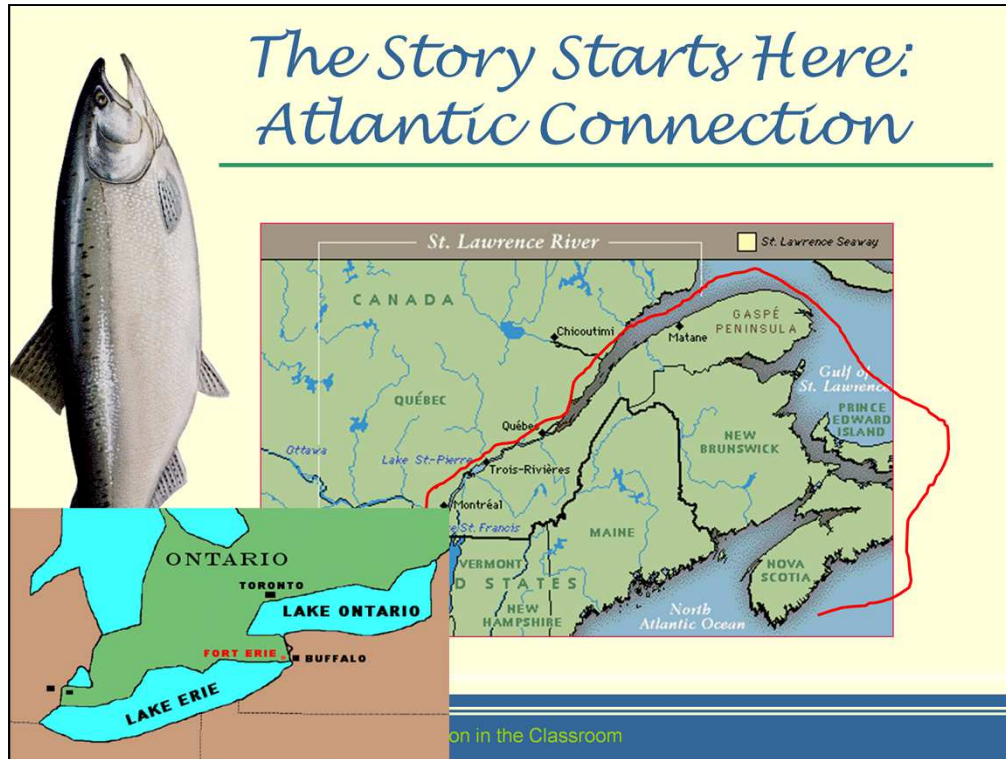




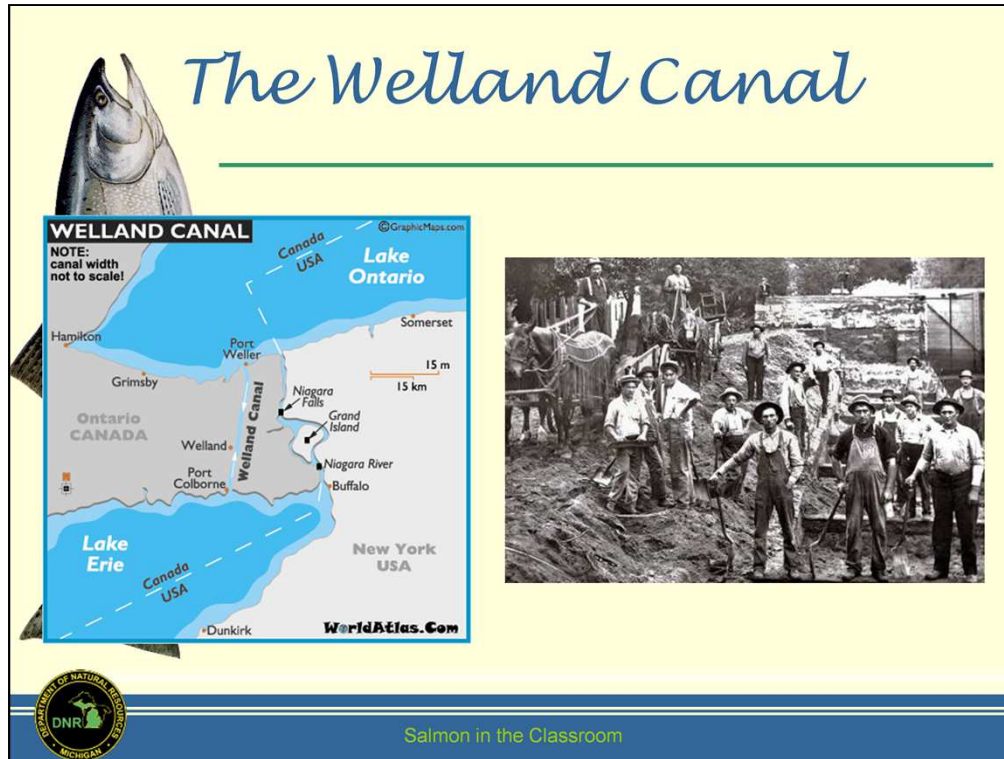
Good Morning everyone and welcome to the Wolf Lake State Fish Hatchery and the Salmon in the Classroom program. The fish eggs you will be receiving this morning may not look like much but they are packed with history, knowledge, and miraculous stories of nature. Chinook salmon are not native to the Great Lakes and even though Michigan is geographically centered in the US, close anyway, this story is tied extremely close to both the east and west coast of North America. It is a story rich with drama, action, romance and on occasion...horror. But let's start at the beginning. Interestingly, this story ever doesn't begin in Michigan.



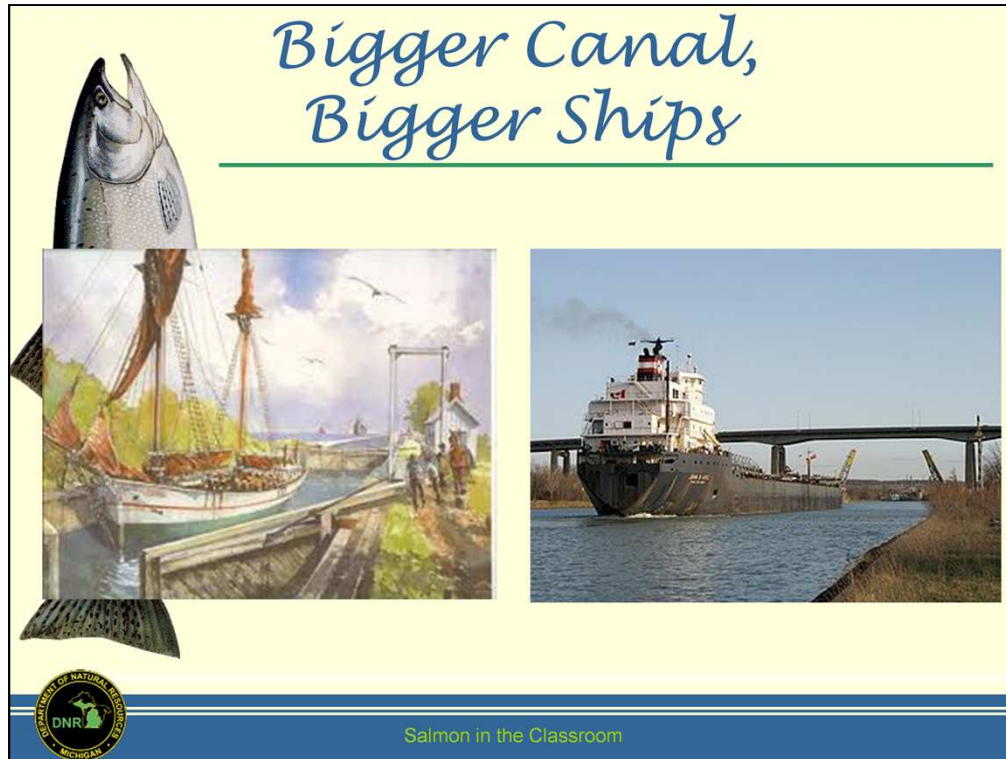
It begins east of here in the Atlantic Ocean. You see, for thousands of years life in the Atlantic Ocean wandered into the St Lawrence seaway and into lake Ontario. At the western end of Lake Ontario, these same critters traveled down the Niagara River until they swam into...



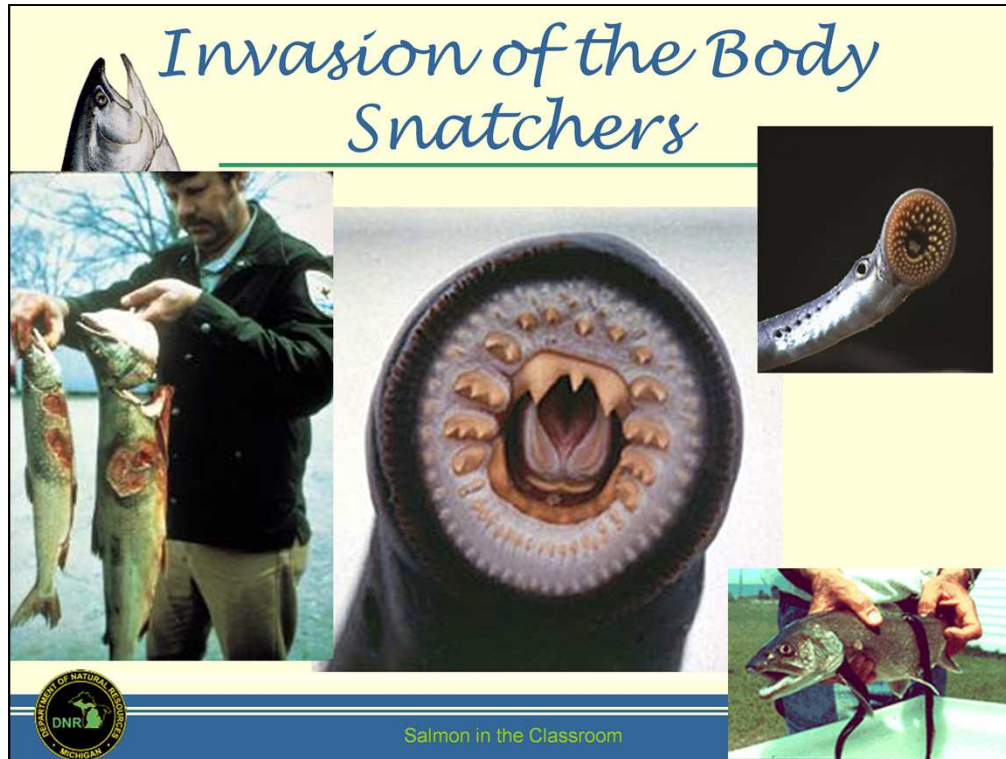
Niagara Falls! And a 176 foot wall of cascading, crashing water. There was no way any of these ocean loving sea critters could get to the Great Lakes basin. The falls was Nature's version of a stop sign and it had been this way for millenia, or at least a very long time.



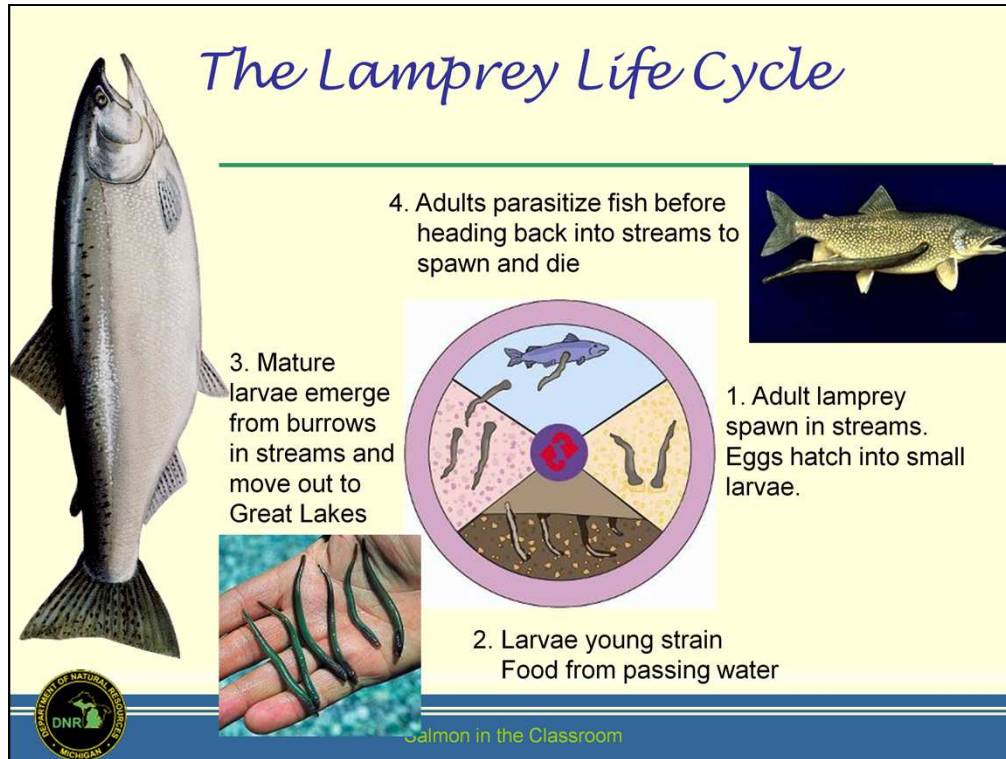
But as we know mankind likes to “progress” and rarely lets nature stand in its way. In 1825, 200 men with picks and shovels began to dig the Welland Canal named for the local River they began to channelize. They made .50 cents a day digging a ditch that would be 27 miles connecting Lake Ontario and Lake Erie so that small boats could avoid the Niagara escarpment and falls. It would allow passage without stopping to unload canoes and boats to portage up and around the falls, a major undertaking at the time. And Four years later the canal was completed. It was about 21 feet wide and 8 feet deep and handled very limited shipping! But Over the next 145 years the canal was improved and expanded and improved and expanded four more times. Today the canal about 72’ wide in most paces and about 24 feet deep or so. And the size went from ships this size ...



To this... and of course the engineers and builders and shippers and politicians never thought about what else might be traveling through the canal. Here comes the horror part:



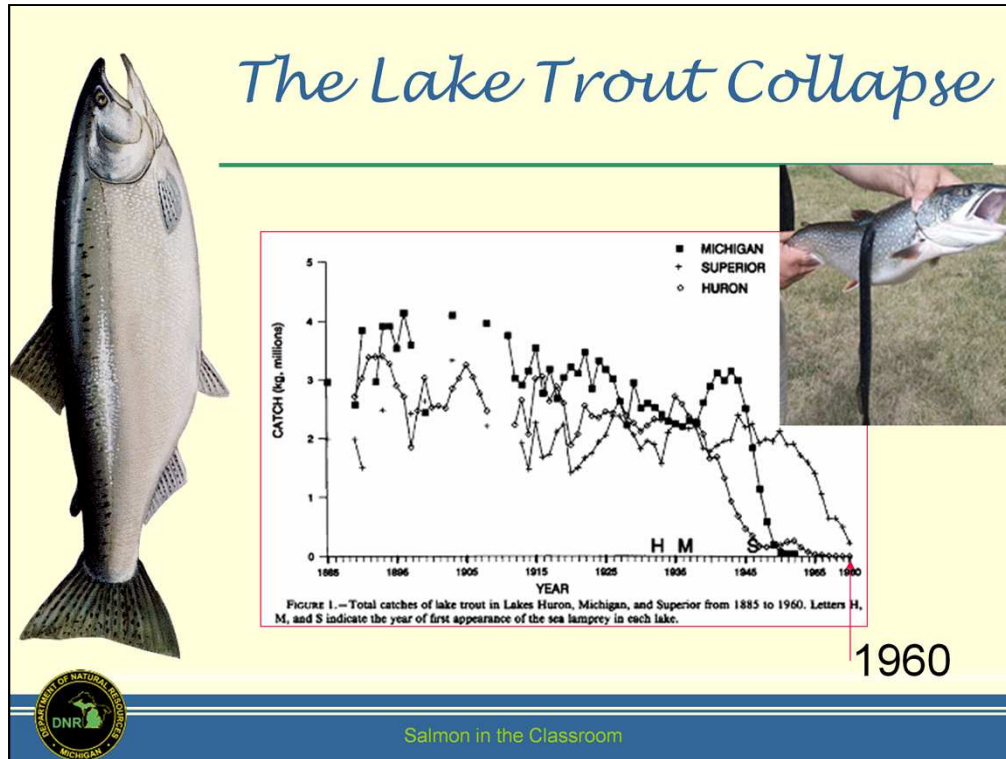
The Sea Lamprey, an 18 inch eel-like creature followed those ships. When they first arrived no one knows for sure but the lamprey was recorded in lake Erie in the 1920s. The adult lamprey attaches itself to fish and using it's rasp-like teeth to scour out a wound in the fish and suck out the body fluids, killing many but others weak enough to swim away to live another day.



Adult lamprey spawn in rivers each spring and then die. The eggs are buried in the sand and hatch in 10-12 days. The $\frac{1}{4}$ inch larvae emerge as the water warms and float down to a calm area in the river where they burrow into the bottom and they may remain there from 3-17 years straining microscopic food as it passes by. Each fall, usually October, some of them have matured into 4-7 inch eellike creatures - and emerge from their burrows moving out to the Great lakes to begin life as an aggressive adult. They spend 1-1.5 years in the Great Lakes consuming up to 40 pounds of fish before returning to the streams to spawn, lay eggs and die....



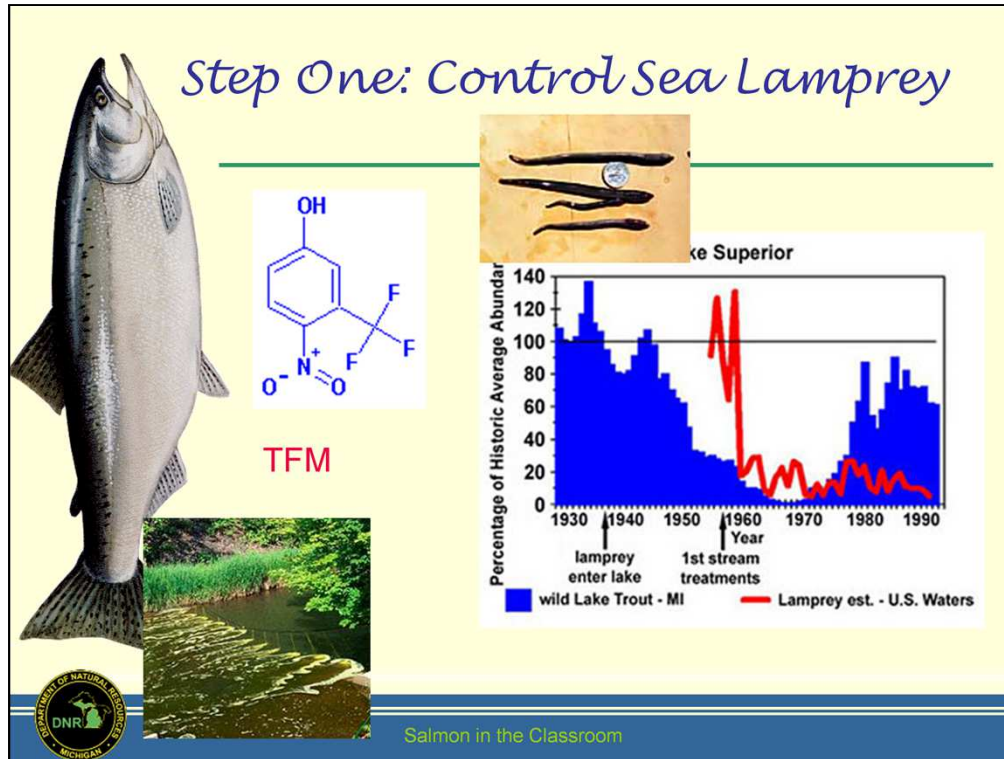
Lamprey quickly colonized the Great Lakes, Lake Huron by 1931, Lake Michigan by 1936 and Lake Superior by 1938.



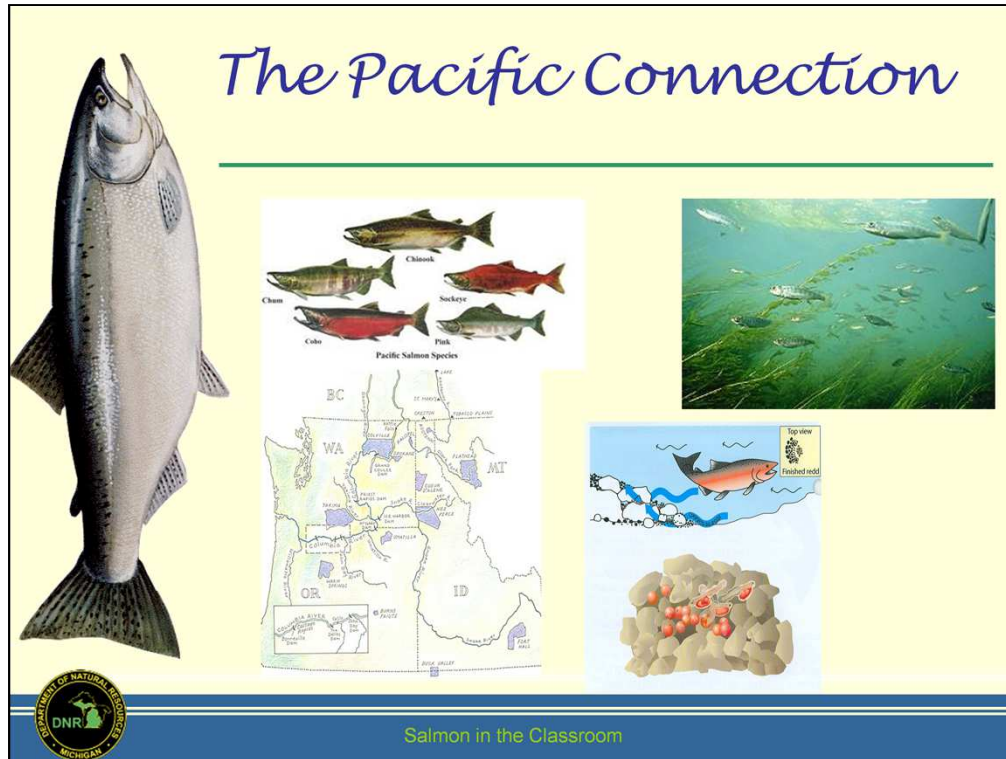
The lamprey's favorite victim was the Lake Trout, the top predator in the Great Lakes, top of the food chain. Lampreys were not the only contributing factor to the demise of the Lake trout.. over commercial fishing, pollution and other factors were also part of the equation but lamprey were the key ingredient. So as the Lamprey gained a tremendous foothold in the Great Lakes, the Lake Trout population began to crash which had a few other unintended consequences.....linked to



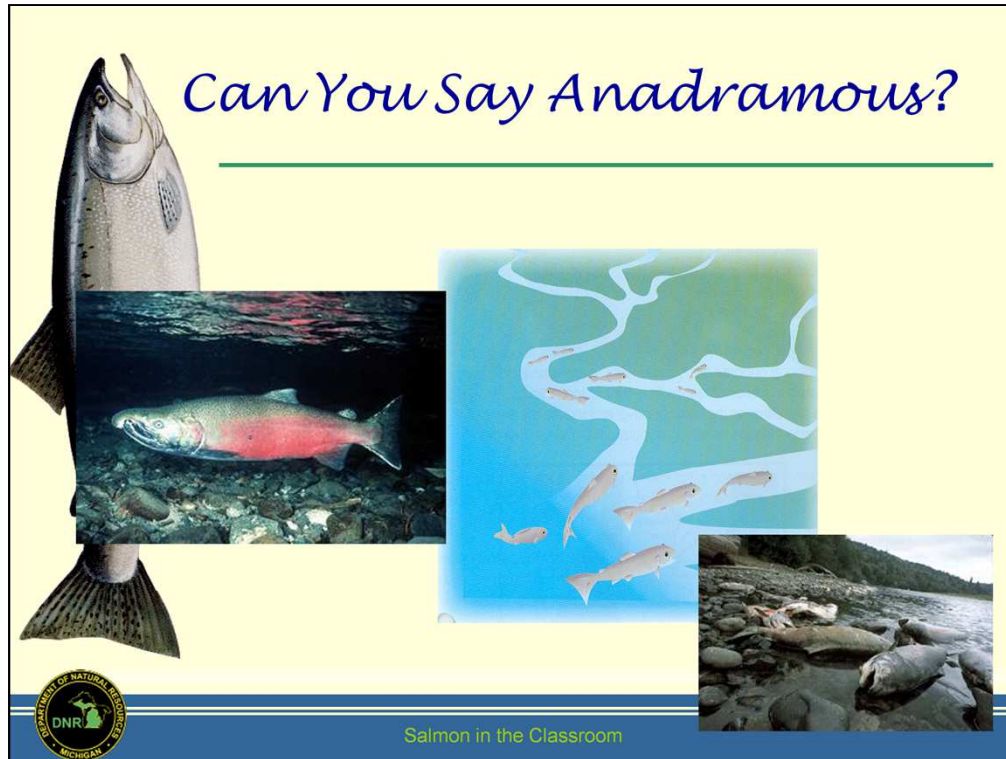
this small fish called the Alewife. This forage fish, 4-8 inches long also entered the Great lakes through the Welland Canal and its population peaked as the Lake Trout population crashed and there was no major predator to keep their populations in check. Soon occasional summer die-offs in the late 1950s and early 1960s of these colonized fish created issues along the Lake Michigan shoreline where piles of dead fish were stacked up on beaches, rotting in numbers so high, many people fled their beachfront homes from the stench. Without the Great lakes top predator, the Lake Trout, things were not pretty and fisheries biologists were scratching their heads for an answer....



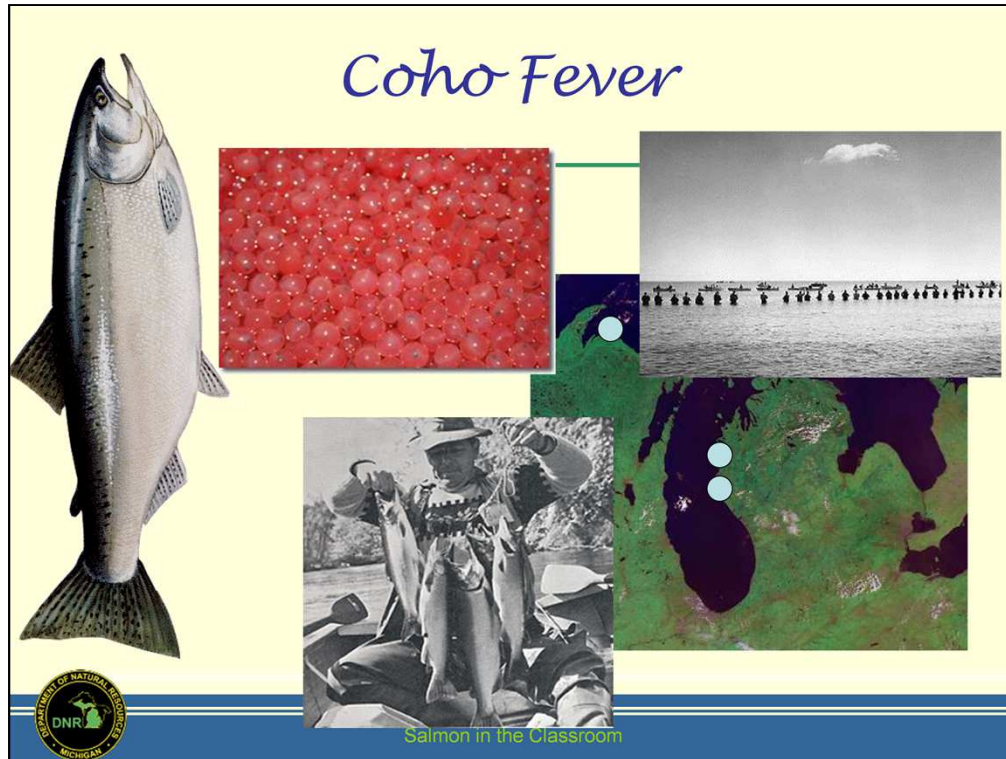
The first step was to try and control the lamprey. In the early 50's – more than 6,000 chemicals were tested and TFM (3-trifluoromethyl-4-nitrophenol) met all requirements. TFM was very targeted and killed larval stage lampreys before transformed to parasitic adulthood. From 1958 – 1962 the Great Lakes Fishery Commission's Lampricide program using TFM in Lake Superior reduced adult Lamprey by an estimated 90%....TFM then began to be used on Lakes Huron and Michigan. So things were looking up a bit...but this in 1960 and our Lake Trout populations are frighteningly low. Dept of Conservation fisheries staff, began to look for a new top predator for the Great lakes...Remember the Allantic Ocean Connection we talked about...



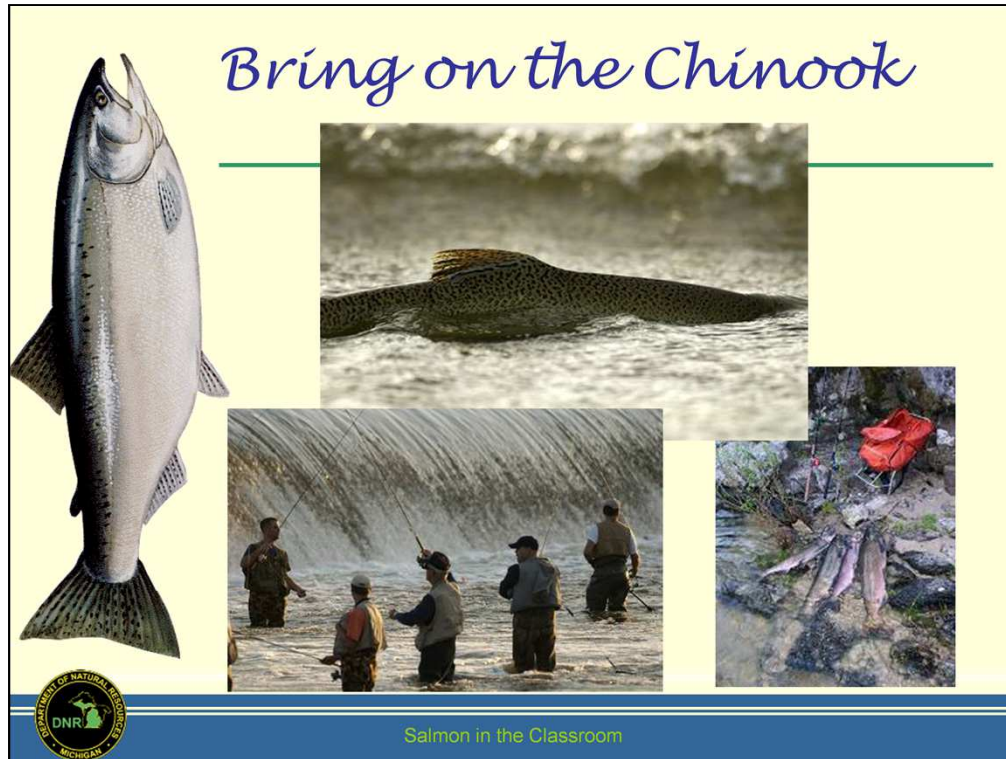
Here is the Pacific connection. After several years of literature reviews of research and interviews with northwestern fish biologists, Michigan fisheries professionals decided to gamble on bringing Pacific salmon to the Great Lakes. Pacific salmon migrate from the ocean into rivers and streams and lay their eggs. The young salmon over winter in these waters and then as young smolts they travel out to the ocean where they feed from 1-3 years.



Then these much larger fish swim up all the rivers and streams, some up to 900 miles, to their natal stream where they spawn and die. But there is one more amazing thing about Pacific Salmon. Because they are anadramous and move from freshwater rivers and streams as smolts to the saltwater Pacific Ocean and then back again to freshwater to spawn. Would these Pacific salmon be able to adapt to a totally freshwater ecosystem?



In 1964 one million Coho Salmon eggs were brought to Michigan from Oregon and raised in hatcheries until their release in three Michigan locations (Manistee, Platte, and Big Huron River near Baraga) in spring of 1966. By the spring of 1967, commercial fishermen began picking them up in their nets near Indiana. By the fall of 1967, survey nets near Manistee showed huge concentrations of salmon. When rumor of the size of these fish got out, the Labor Day weekend near Manistee resembled a gold rush. Hotels filled for 50 miles around and fishermen were easily catching 15-18 pound salmon. It looked like the experiment had worked. But Coho require a lot of time in the hatchery, which of course costs money and they also had a tendency to migrate over toward the Wisconsin side of the big lake.



Chinook, an even larger salmon was introduced from Washington State stock in the late 60's and they would eventually be an even larger success story. Today, millions upon Millions of dollars in Michigan are attributed to the Great Lakes Salmon fishery.



So, From an agency perspective, Salmon in the Classroom give us a chance to highlight a fisheries Mgt success story.


An ecosystem out of balance and in chaos, reseasrch, hard work, and management the ground work for....




Pure Fishing...and a million plus dollar industry

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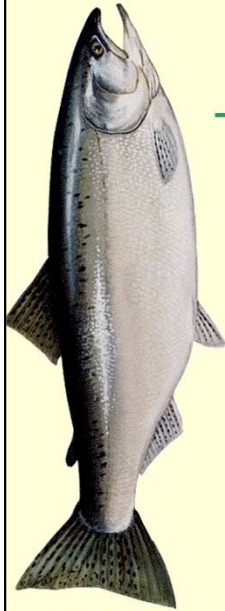
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Now time for my commercial... You can learn a lot more about wildlife management and fisheries management and forestry and more at the DNRs Academy of Natural Resources this summer.

Thank You!



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Salmon in the Classroom